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PLANT INDUSTRY

WEEKLY STATION REPORTS

OF THE DIVISION OF

DRY LAND AGRICULTURE

BUREAU OF PLANT INDUSTRY

U. S. DEPARTMENT OF AGRICULTURE

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REPORT FOR THE MONTH OF DECEMBER, 1933.

HAVRE:

The month was colder than normal, the mean from the station records being 14°, Weather Bureau normal 20.4°. The first nine days were mild as well as the period between the 17th and 21st, with temperatures rising above freezing. The remainder of the month was rather steadily cold with 14 days when the minimum was below zero and three days with the maximum below zero. Wind velocity was high on the 16th, 17th, 20th, and 21st. The station record for 24 hours was broken on the 17th with an average of 23.6 miles per hour on the 2-foot anemometer. Soil blowing, however, was not serious as the soil was moist and partly frozen. Soil moisture was very favorable this fall, and winter grains made fair to good growth with very little grasshopper injury. Entomologists report a large number of grasshopper eggs this fall, and with favorable conditions they may be a serious menace next year. Range conditions were not very favorable during the month, more or less snow and some ice covered the ground for nearly three weeks and temperatures were low enough so that feeding was quite general. Because of late growth, range grass did not mature very well although it is fairly abundant. Feed supplies are below normal except in irrigated sections. The yearly precipitation was 15.16 inches, station average 12.10 inches. The first seven months were all below normal, except May which had a slight excess. August showed 5.46 inches compared to a normal of 1.21 inches. The last three months show slight excesses. Snowfall for the year was 51 inches. With July very warm and dry, yields were generally low. The station has been using 56 men under Civil Works for the past five weeks, and under present arrangements will continue to use them until February 15. The work has been largely cleaning the grounds of debris from the old buildings, repairing roads, wrecking buildings that have no value, and remodeling additional dwellings. To-date, these men have lost no time because of bad weather. The beef cattle lots for winter feeding were started December 5 to 8. They include, 5 lots of cows, 4 lots of yearling and 2-year-old heifers, and 6 lots of calves. These have from 12 to 15 head per lot.

Maximum temperature, 50°; minimum, -18°; precipitation, 0.86 inch.

JUDITH BASIN:

December weather was variable with several light snows, a few sprinkles of rain, and frequent chinooks. At no time during the month did the snow cover exceed 6 inches and then for only a few days time. Strong chinook winds melted the snow within a few days after it fell, and practically all the moisture evaporated with little benefit to the soil. At the end of the month there was only about 2 inches of snow on the ground. The surface 6 inches of the soil has been frozen about half of the month. Director F. B. Linfield visited the station during the month.

Maximum temperature, 57°; minimum, -19°; precipitation, 0.76 inch.

HUNTLEY:

Climatic conditions during most of December were quite mild and the ground was free from snow. There were, however, brief intervals of snowy weather and below zero temperatures. Wind movement was moderate, except for a gale a few hours on the afternoon of December 23 which damaged hay stacks, trees, and light buildings. The ground was covered with snow during the coldest periods of the month, affording ample protection to winter grains and perennial forage crops. At this time the snow cover is uniform and

about 3 inches deep. When last seen, the winter wheat on all plots appeared to be in excellent condition. The fifth Annual Lamb Feeders' Day was held at the station on December 22. Nearly every person in attendance was a farmer engaged in lamb feeding operations. Extremely muddy roads kept a number of farmers away at the time, but some of them have since called at the station to obtain the results of the feeding trials.

Maximum temperature, 58°; minimum, -19°; precipitation, 0.88 inch.

SHERIDAN:

The greater part of the month was quite mild, there being only two short periods of what normally would be considered winter weather. Temperatures were below zero on only the 24th and 26th. Precipitation for the month was light, but there is about a 4-inch covering of snow as the month ends. Wind movement was high at times and there was some soil blowing. The month as a whole could not be considered favorable for fall seedings of grain, the surface soil being rather dry. The mean temperature was about 5° above the station average for the month.

Maximum temperature, 64°; minimum, -22°; precipitation, 0.34 inch.

DICKINSON:

Precipitation in December amounted to 0.41 inch. The ground was covered with snow most of the month, and there was about 3 inches on the ground at the end of the month. This was much less than in most other parts of the State. The minimum temperature was -23° on the 26th. The total precipitation in 1933 was 11.5 inches. This is the third lowest amount in 42 years of record. The two other drier years being 1919 with 8.35, and 1917 with 9.35 inches. The snowfall in 1933 amounted to 29.8 inches, or about an inch above the normal. Only routine work was done outside during the month.

MANDAN:

Horticulture - 1933 was a poor year for the production of horticultural crops. Winter injury was more severe than usual, particularly in the case of Japanese hybrid plums. The precipitation was decidedly below normal for every month from April to October, inclusive, and the soil became very dry during the summer and early fall. As a consequence, yields were generally low, and many closely planted trees and shrubs suffered severe drought injury. Insects and diseases were not unusually troublesome. Plum gougers, plum borers, and red spiders were the worst of the insect pests. Blight did but little damage to apples and crabs, the dry weather not favoring the spread of this disease. An experiment with paradichlorobenzine indicates that this chemical is effective in killing plum borers. In the spring of 1933, no live borers were found in trees treated in October, 1932, while live borers were readily found in untreated trees. As far as could be seen, the paradichlorobenzine had no injurious effect on the treated trees. Rabbits and mice were less troublesome than in most years. As a general rule, apples and crabs survived the winter in fair to good condition. However, some varieties that bore heavy crops in 1932 bloomed very lightly in 1933, and yields were generally low. Erickson, Longfield, Anisette, Anoka, Minn. No. 300, Maga, and Oxbo, were the highest yielders among the apples. White Arctic, Virginia, Florence, Tony, Columbia, Minn. No. 270, Amur, and Carleton, were the best of the crabs. The total yield of plums in the plum variety orchard was only 4,805 pounds, as compared to 21,591 pounds in 1932. Native Prunus Americana and Prunus nigra varieties were by far the hardiest and heaviest yielders under test. Sandcherry hybrids, while fairly hardy, did not yield as heavily as the native varieties. Japanese hybrids suffered severe winter injury and produced but little fruit. Only three of the first 40 highest yielding varieties were Japanese hybrids, as compared to 19 in 1932. This

class was also more severely damaged by plum borers than other plums. Minn. No. 81, Forest Garden, Sel. No. 46, Sel. No. 43, Sel. No. 64, Wolf, Sel. No. 53, Wyant, Sel. No. 70, and Melander seedling, all native varieties, were the 10 highest yielders under test. Cherries and Chinese cherries suffered considerable winter injury and bore little or no fruit. Sandcherries, however, came through the winter in good condition and bore heavy crops. Selections 24-28, 24-16, 25-2, and 24-36, were among the best of the sandcherries, considering yield and quality. Small fruits, such as currants and gooseberries, passed through the winter in fair to good condition and generally set fair crops of fruit, but they were severely damaged by hot weather in the middle of June, and a large part of the fruit was scalded and dropped off. Pomona and Red Dutch were the highest yielding currants, and Carrie and Houghton were the most prolific of the gooseberries. Raspberries yielded poor to fair crops. Latham being the best of the red varieties and Chief second. Cumberland was the best of the blacks. Covering with soil during the previous winter increased yields of all varieties except Chief, which may indicate a superior hardiness for this variety. Strawberries suffered severe winter injury and produced light yields. Harvest King and Cooper were two of the highest yielders. The straw mulch system showed to advantage in the cultural test. Grapes produced fair yields in 1933, Beta being the highest yielding variety. As in previous years, covering the vines with soil during the winter resulted in increased production as compared to unprotected vines. Native fruits such as Juneberries, chokecherries, buffaloberries, and Golden currants generally came through the winter without noticeable injury, and produced fair to heavy crops of fruit.

Yields in the different cultural experiments were generally low and irregular. Regular spacing showed up to advantage in the 'Planting Systems' experiment, as compared to close spacing. Moderate pruning gave better results than severe pruning or no pruning in the 'Pruning' experiment. The straw mulch system of culture seemed to be best in the plum 'Hardiness Test', but results were very irregular. Plums on Prunus americana stock did at least as well as any in the 'Plum Stock' experiment. Low yields were the rule in both the hillside and coulee orchards. Japanese hybrid plums in the coulee suffered severely from winter injury and drought. Small fruits planted in a contour system in the west coulee came through the winter in fair to good condition and produced fair crops. This planting looks promising. 1933 was not a good year for making selections in the breeding blocks, as yields were generally low and winter and drought injury severe. Nevertheless six new selections of the Chinese cherry, seven Golden currants, six gooseberries, and one plum selection were made. Some of the older selections looked good, and a few of the best should be propagated and put on the market. Individual tree notes were taken of all trees of known parentage in the breeding blocks.

Vegetables, 1933 - Vegetables in general were unsuccessful at the station during the past season. There were some puzzling exceptions in certain locations or after different plantings. Also some of the newer varieties tested on a small scale gave fair to good yields. The acre-garden produced the poorest results, due to its exposed situation, fixed planting dates, and rather old and out of date varieties. Vegetables in the coulee garden gave much better results. Several variety tests were conducted here with quite marked differences as to yields and quality. The more outstanding ones are as follows:

Beets: Ohio Canner - Very good yield of extra dark, tender, globular roots.
Tomato: Break O'Day and Pritchard - Very little blossom-end rot, early and productive.
Sweetcorn: Gills Early, Golden Market, and Sunshine.
Squash: Des Moines and Improved Hubbard - Late but heavy yields.
Waxbeans: Fordhook Favorite - Very tender, stringless green bean.
Lettuce, radishes, and spinach were as good as in an average season.
New Zealand spinach was especially good, never showing effects of drought or heat the entire summer until killed by frost.
Selected strains of Golden Bantam sweetcorn planted three different dates, May 20, June 1, and June 10, gave fair yields from first, good from second, and fair from third planting.

Breeding work was successful with melons. A large number of selections of both watermelons and muskmelons were almost true to type and of good uniformity. Sweetcorn breeding was only moderately successful, as a large number of pollinations were fruitless, due perhaps to the intense heat in midsummer. Tomatoes were much affected by drought and heat. They were late in setting fruit, and the early yield was much reduced. There was however, very little disease such as Blossom end rot or wilt. A good yield was secured from fruit maturing in September, and a rather striking uniformity was noted throughout. Landscape work on the grounds was quite successful, but much time and labor was spent in watering and irrigating in order to preserve present lawn and shrubbery plantings. Ornamental trees and shrubs in variety tests in the field suffered much from drought towards the end of the season, and much winter injury may be expected. December maximum temperature, 53°; minimum, -24°; precipitation, 0.52 inch.

BELLE FOURCHE:

December was comparatively mild and dry. A number of snow flurries were received, but the precipitation was negligible. The mean temperature was 22°, which is 2° above normal. The forepart of the month was unusually warm, but a sudden drop in temperature took place on December 10 following a light snow. The weather turned warm again on December 17, and temperatures closely approaching the highest on record for December occurred December 21 and 22. The abnormally warm weather was terminated on December 24 by the first severe cold wave of the season. Zero or subzero temperatures were recorded on six consecutive nights, but the cold wave was ended abruptly by a warm wind on December 29. The frequent, sudden changes in temperature and the continued lack of precipitation and protective covering of snow have been very unfavorable to fall grain, and there has been a marked deterioration in the condition of winter wheat and winter rye during the month.

Maximum temperature, 64°; minimum, -18°; precipitation, 0.18 inch.

ARCHER:

During December the weather was dry with mild temperatures and at times heavy winds. The winds caused considerable soil erosion where proper precautions were not taken. Owing to drought the months of June and July were unfavorable for crop production. August was very dry until the 27th when a heavy hailstorm destroyed practically all vegetation. Rains followed during the next few days, and September received considerably more than the average amount of precipitation. This late precipitation was of little value to the 1933 crop, but it made ideal conditions for seeding winter cereals. Cereals seeded on fallow have continued to thrive to the present date, but those seeded on cropped land are in a critical condition. Civil

Works projects at the station have taken up all the time since the first of December. The Federal project was completed December 28. The State projects are in progress and consist of road construction, moving bunkhouse, reconstructing horse barn, and repairing buildings. Maximum temperature, 64°; minimum, 5°; precipitation, 0.26 inch; precipitation for the year, 13.12 inches.

NORTH PLATTE:

Temperatures and precipitation for the month were well above normal. At the North Platte Weather Bureau the excess mean temperature was 6.6°. Precipitation amounting to 1.06 inches is exactly double the normal. All of this except 0.04 inch came as rain on the first two days of the month. Total snowfall for the season to date is less than 2 inches. Total precipitation for the year was 17.14 inches at North Platte and 17.75 inches on the Substation table. These amounts are respectively 1.27 and 0.66 inches below the Weather Bureau normal. Crews of C. W. A. employees have been grading and graveling station roads during most of the month. The open weather has permitted continuous work, and favorable progress has been made. Employment has been given to about 90 men on this project.

AKRON:

December temperatures were the mildest, or among the mildest, in the 25-year history of the station. There was no wind, and the days were clear and warm. The month opened with a snowstorm which was evenly distributed over the ground and which melted within a week after falling. The precipitation was 0.75 inch and markedly revived the badly wilted winter wheat. The month was especially favorable for accomplishing N. R. A. and C.W.A. projects. The pig fattening work was started December 18. It consists of six lots of nine pigs each, testing different kinds of protein supplements. Mr. Ivan Watson, graduate of Texas and Colorado Agricultural Colleges is at the station in charge of this experiment.

COLBY:

December was dry except for a fairly good rain on the 1st. The temperatures were generally moderate with no subzero weather. There were no very high winds. The weather was generally pleasant and favorable for outdoor work. The ground did not freeze much until the last week. Winter wheat is in excellent shape for the winter. On most plots it has made enough growth to protect itself fairly well from soil blowing. It continued to grow until Christmas, when near zero temperatures set in. On corn, milo, and bean ground where the seed bed had been too dry until after the rain on the 1st, the wheat sprouted and many plants emerged during the month. Maximum temperature, 71°; minimum, 5°; precipitation, 0.42 inch; precipitation for 1933, 16.69 inches; 46-year average, 17.99 inches.

GARDEN CITY:

Station work the past month has consisted of such jobs as filling washes, hauling in the last of the crops from experimental plots, and preparation of annual reports. All winter or late fall plowing, listing, and field operations have been completed. Winter wheat looks better than any time during the past two winters. The fall was ideal for late growth and development. November and December were unusually mild. Moisture conditions have been very favorable in this immediate locality since August 1. The 25-year normal rainfall for the last four months of the year totals 6.77 inches. During the last four months 11.09 inches have been received, most of which came in very beneficial form.

Maximum temperature, 72°; minimum, 10°.

HAYS:

The weather has beengenerally fair and mild for December, there having been no zero weather. The October and November drought was broken by 2.15 inches rain the first day of December followed by 0.02 inch the next day, which made up the total precipitation for December. December is the first and only month of the year that received an amount of precipitation equal to its normal. The rain December 1 covered a period of 24 hours, falling very slowly or in small showers so that practically all the water went into the ground, with the result that it put the top soil in very good condition for the wheat to go into the winter. Wheat that had not previously sprouted on account of the dry soil sprouted during the month and most of it has emerged. The temperature has ranged between a maximum of 74° and a minimum of 6° with a mean of 38.8°. Generally, the weather has been open and mild, which is very fortunate for man and beast in the presence of low feed supplies and low finance. Winter wheat on fallow and early fall preparation generally has made fair growth and would have furnished some pasture. Wheat seeded on late preparation and on disked corn stubble is spotted. On sorghum stubble ground, late disking, and stubbled in plots there is little wheat to be seen above the ground. It is just up and that is about all. Precipitation for the year 1933, Weather Bureau records, 16.26 inches; Dry Land Agriculture records, 14.57 inches.

TUCUMCARI:

December was exceptionally dry and unusually warm, the mean temperature of 45° being 8° above the 28-year mean. This was the second December on record with no precipitation, the same condition existing in 1920. Outside work was possible throughout the month, the lowest temperature recorded being 15°. Work progressed normally, with a considerable quantity of caliche being hauled to station roads and a fair acreage of land freed from mesquite roots. Work on both projects is continuing without delay. Enough work has been performed on annual reports to show that station yields were in most cases at least up to average, with some crops producing considerably more than average yields. In spite of poor stand, cotton was unusually high, and a rotation peanut plot produced at the rate of 1,740 pounds of nuts to the acre. Ranges are in good condition, but only over a limited area. Grass is much poorer to the south, east, and northeast than in this immediate vicinity. On a trip to Clovis and Amarillo during the latter part of December one was impressed with the poor condition of range and wheat land. Precipitation for 1933 was 16.50 inches, or only 0.5 inch below the 28-year average. However, 12.05 inches fell during July and August, with only 4.45 inches for the other ten months. A great amount of the torrential rain in August, totaling 8.38 inches, was lost as run-off, so crop yields were surprisingly satisfactory considering the unfavorable distribution of rain and its rate of fall in August. Maximum temperature, 77°, the highest ever recorded here in December.

DALHART:

The warmest December on record brought to a close the driest year on record at this station. The mean temperature for December of 42° was 10° above normal. The total precipitation for the year was 10.14 inches, 5.61 inches of which came during August. In addition to the high temperatures the month of December is especially remembered for several days of high wind velocities and high soil movement. Especially was the soil movement on the 14th severe. Probably more damage was done to crops, in this instance winter wheat, by the wind blown soil than on any previous day during the year. Many wheat fields were swept clean. Farmers report from none to a total loss of wheat from the blowing soil on that date. No attempt is made to estimate the percentage of fields damaged. The fields on the station did not blow severely. The north field drifted some.

Winter rye has, so far, checked soil blowing in the other fields.
Maximum temperature, 74°; minimum, 15°; precipitation, none.

BIG SPRING:

Weather conditions generally were favorable for field work. For the most part warm, dry weather prevailed. The first killing frost occurred on December 6, when a minimum of 24° was recorded. This extended the growing season about 30 days beyond the normal date which is November 5. The rainfall consisted of 0.54 inch on December 29. The total for the year was 11.17 inches or 7.6 inches below normal. 7.86 inches was received during the growing season, normal 13.01 inches for the same period. All threshing, fall plowing, and listing was completed during early December. Although the soil was somewhat dry, a fairly good tillage job was accomplished. Other work consisted of picking and ginning cotton.
Maximum temperature, 82°; minimum, 17°.

LAWTON:

The December precipitation brought marked improvement in soil moisture conditions. A rain of 0.78 inch, December 1, penetrated only the surface soil, but it was of distinct benefit to small grains. Another rain of 1.80 inches on December 18 fell slowly with but little run off for stock water. Cloudy, misty weather from the 28th to the 30th produced 0.21 inch of precipitation bringing the monthly total to 2.79 inches, which is 1.19 inches above normal. The annual precipitation of 29.42 inches for 1933 is only 1.43 inches below the long time average. December temperatures were very moderate, and the monthly mean was nearly 5° above the 1916-1931 average. The ground has dried slowly since the precipitation on the 18th, and but few days have been suitable for field work. As yet, but little fall or winter plowing has been done on the surrounding farms. Soil conditions are now suitable for such work, and it is likely that preparation for spring seeding of oats will progress as the weather permits. Wheat, fall seeded oats, and winter barley are in condition to make a good growth early in the spring if average weather prevails.
Maximum temperature, 77°; minimum, 16°.

WOODWARD:

The month was free of storms or low temperatures that prevented outside work. Wheat, which made a rapid growth in November and stooled heavily, has continued to deteriorate, many of the leaves dying. Winter barley planted in places over the country was in some cases heading soon after Thanksgiving. There has been only 1.58 inches of precipitation over the past three months, over half of this falling the forepart of October. Therefore, soil is very dry. The earlier planted wheat has of course suffered much the worst. Lack of wheat pasture is a serious hardship to many who had little sorghum feed. However, warm open winter has greatly mitigated suffering by livestock.
Maximum temperature, 77°; minimum, 8°; precipitation, 0.20 inch.

PENDLETON:

The weather during December was exceptionally fine, with no low temperatures or storms. Precipitation of 0.01 inch or more occurred on 19 days, the total for the month being 3.61 inches, which was 1.37 inches above the 5-year average. The precipitation for the calendar year was 16.70 inches or 2.74 inches above normal. The only snow during December came on Christmas Day with a fall of 10 inches, this all melted within five or six days and none was lost by runoff. High winds prevailed for five days, December 17-21, the highest average for the 24-hour period being 16.9 miles per hour on the 17th. During this period flood conditions prevailed in Western Oregon and

Southwestern Washington, and centered around Kelso and Longview, Wash., resulting in the loss of 21 lives and millions in property damage. Astoria, Ore., near the coast reported 36.07 inches precipitation for December and an annual precipitation of 114 inches. All fall sown crops are in excellent condition and making growth. Ranges are also in excellent condition and are providing feed for the sheep and cattle in sufficient quantity that supplementary feeding has not been necessary so far this winter.

Maximum temperature, 67°; minimum, 21°; mean, 41.8°.

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